



Name: _____

Grade 5

PATTERNING & ALGEBRA: EQUATIONS

Don't forget to go through the *Equation Maze*. Go to **mathfrog.ca** for the link.

1. Enter the missing the number in the box.

a. $5 + 4 = \square$

b. $10 - 4 = \square$

c. $2 \times 7 = \square$

d. $5 + \square = 9$

e. $10 \div \square = 5$

f. $2 \times \square = 22$

g. $\square + 4 = 20$

h. $\square - 4 = 4$

i. $\square \times 7 = 21$

2. If $z = 8$ and $y = 5$, which equations are true? The first one has been done for you.

a. $z + 1 = 10$

b. $y - 9 = 14$

c. $17 - z = 9$

$8 + 1 = 9$

FALSE

d. $5 \times y = 15$

e. $z + y = 12$

f. $z \times y = 40$

3. Find the value of n in each equation.

a. $n = 6 + 5$ $n =$ _____

b. $n = 21 + 14$ $n =$ _____

c. $12 - 8 = n$ $n =$ _____

d. $23 - 14 = n$ $n =$ _____

e. $n = 3 \times 2$ $n =$ _____

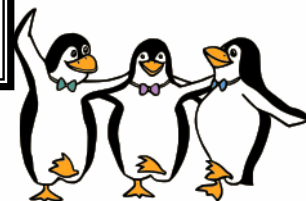
f. $12 \times 9 = n$ $n =$ _____

DID YOU KNOW?

The equals sign "=" was created in 1557 by Robert Recorde.

Below is the first recorded equation.

14.7. - 11.7. = 71.9.



4. Find the value of the letter in each equation.

a. $x + 17 = 30$ $x =$ _____

b. $s - 8 = 29$ $s =$ _____

c. $15 + y = 27$ $y =$ _____

d. $13 - w = 2$ $w =$ _____

e. $2 \times c = 18$ $c =$ _____

f. $30 = 3 \times q$ $q =$ _____

g. $12 = j - 8$ $j =$ _____

h. $11 \times h = 99$ $h =$ _____

i. $17 = 4 + m$ $m =$ _____

j. $12 \times z = 108$ $z =$ _____

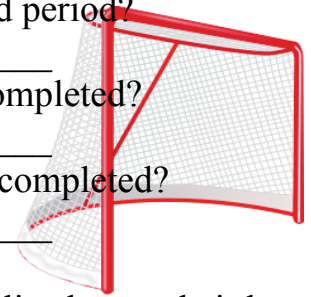
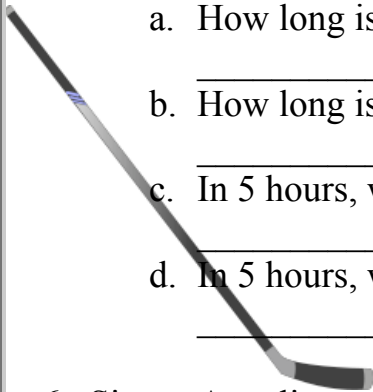
5. In the Math league, a game of hockey consists of three 20-minute periods. If the score is tied at the end of the third period, another 20-minute period is played.

a. How long is a game if the score is 4 to 3 at the end of the third period?

b. How long is a game if the score is 2 to 2 at the end of the third period?

c. In 5 hours, what is the **fewest** number of games that can be completed?

d. In 5 hours, what is the **greatest** number of games that can be completed?



6. Sisters Angelica and Brooke drive their cars at the same speed. Angelica leaves their house before Brooke. When Brooke leaves their house, Angelica is 20 km ahead.

a. When Brooke is 30 km from their house, how far has Angelica travelled?

b. When Angelica is 60 km from their house, how far has Brooke travelled?

c. If Brooke has driven for 2 hours at 50 km/h, how far has she travelled?

d. Angelica has driven for 2 hours at 100 km/h. If Brooke has driven for 1 hour at half Angelica's speed, how far has Brooke travelled?

7. Mercedes is selling chocolate bars for a school fundraiser. Each chocolate bar sells for \$4.00. She models her sales using the equation $S = 4 \times b$ where S is her total sales in dollars and b is the number of bars sold.

a. What are Mercedes' total sales from five chocolate bars?

b. How many chocolate bars can be purchased for \$36.00?

c. Mercedes decides to sell each bar for \$3.00. Write a new equation to model her total sales.



TRY THIS!

Replace each letter in the first 'addition' with a different digit from 0 to 9. Without using any digit for more than one letter, find a value for each letter so the 'addition' is true. Repeat this process for the second 'addition'. *Hint: There are many possible answers for both problems.*

$$\begin{array}{r} \text{O N E} \\ + \text{O N E} \\ \hline \text{T W O} \end{array}$$

$$\begin{array}{l} \text{O} = \\ \text{N} = \\ \text{E} = \end{array}$$

$$\begin{array}{l} \text{T} = \\ \text{W} = \end{array}$$

$$\begin{array}{r} \text{T W O} \\ + \text{T W O} \\ \hline \text{F O U R} \end{array}$$

$$\begin{array}{l} \text{T} = \\ \text{W} = \\ \text{O} = \end{array}$$

$$\begin{array}{l} \text{F} = \\ \text{U} = \\ \text{R} = \end{array}$$

8. For extra practice try the game *Solving Equations 1* in the Grade 6 Patterning and Algebra section of mathFROG.